

SUPPLEMENTAL DIRECT TESTIMONY OF MARK E. MEITZEN

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Mark E. Meitzen. I am Vice President of Christensen Associates. My business address is 4610 University Avenue, Madison, WI 53705.

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN THIS PROCEEDING?

A. Yes, I have.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The Illinois Commerce Commission (the Commission) approved an alternative regulation plan in 1994 for Ameritech Illinois. The Commission's Order in Dockets 92-0448/93-0239 Consol. (the Order), which approved the alternative regulation plan (the Plan), also called for a review of the Plan. Among the items to be reviewed was an assessment of the productivity gains that form the basis of the offset to inflation (i.e., "X factor") in Ameritech Illinois' price index formula, and whether the X factor should be modified. The purpose of my testimony is to review the recent evidence on productivity issues as outlined in the Order. This review consists of assessing the recent evidence on the productivity and input price differentials that are components of the X factor in the Ameritech Illinois price index formula. Based on the most recent economic data, I will show the changes that have occurred to these components of the X factor since the Commission adopted the Ameritech Illinois price regulation plan in October of 1994.

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**Q. WHAT WAS THE COMMISSION'S SPECIFIC RECOMMENDATION FOR
REVIEW OF PRODUCTIVITY ISSUES?**

A. In the Order, the Commission stated that the review should assess productivity gains for the economy as a whole, for the telecommunications industry (if data were available) and for Ameritech Illinois during the period that the Plan has been in place and whether any changes to Ameritech Illinois' price index formula are warranted:¹

“An assessment of productivity gains for the economy as a whole, for the telecommunications industry to the extent data are available, and for Illinois Bell during the period that the alternative regulatory framework that has been in place, and whether the adopted general adjustment factor should be modified.”

Accordingly, I will assess the recent evidence on productivity gains for the U.S. economy, the telecommunications industry and Ameritech Illinois. Moreover, as I explain below, since input prices are also a measurable component of the “general adjustment factor,” I also review the recent evidence on the input price differential.

Q. HOW ARE PRODUCTIVITY GAINS MEASURED?

A. The productivity concept used in the Ameritech Illinois price index formula is total factor productivity (TFP), which is defined as the ratio of total output to total input:

$$TFP = \frac{TotalOutput}{TotalInput}$$

Productivity gains are measured as the percentage change in TFP, which is computed as the percentage change in total output less the percentage change in total input:

¹ Illinois Commerce Commission, Dockets No. 92-0448/93-0239 Consol., October 11, 1994 (Hereafter, referred to as “Order”); p. 95

$$\%?TFP = \%?Total\ Output - \%?Total\ Input$$

Q. WHY IS TOTAL FACTOR PRODUCTIVITY GROWTH USED AS THE MEASURE OF PRODUCTIVITY GAINS?

A. As discussed above, TFP growth is the percentage change in total output less the percentage change in total input. Total output consists of all the services produced by the relevant unit of production (e.g., a firm or an industry). Total input includes all resources used by the unit of production in providing those services. Typically, TFP studies have three components of total input: capital, labor, and materials. TFP is widely recognized as a comprehensive measure of productive efficiency because, unlike measures of partial productivity, such as labor productivity, TFP provides a measure of the contribution of all inputs used in the production of total output.

Because it is a comprehensive measure of productive efficiency, TFP is an important indicator of economic performance for the overall economy. The U.S. Bureau of Labor Statistics (BLS) measures TFP for the United States economy. In addition, TFP measurement for the telecommunications industry or firms in the industry, such as Ameritech Illinois, is important because under an alternative regulatory regime, it provides an effective vehicle to limit the prices of noncompetitive services.

Q. WHAT IS THE ROLE OF PRODUCTIVITY GAINS IN AMERITECH ILLINOIS' PRICE INDEX FORMULA?

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- A. As I noted in my previous testimony in this proceeding, the price index formula in Ameritech Illinois' Plan was generally described in the Commission's Order:²

"Under price regulation, a regulated company's ability to change prices is controlled by an index rather than through general rate proceedings. Usually, the index has two principal components: (1) a measure of inflation for the economy as a whole (which can be referred to as I); and (2) some offset to inflation which measures productivity and/or other economic and policy considerations (which can be referred to as X). The typical price cap approach can be described as permitting a change in rates according to the formula: $I \text{ minus } X$."

The " $I \text{ minus } X$ " formula sets a ceiling on price changes for Ameritech Illinois services that are subject to the price index. The offset to inflation, i.e., the " $X \text{ factor}$," is the focus of the productivity review required by the Commission's 1994 Order.

Q. WHAT ARE THE SPECIFIC COMPONENTS OF THE X FACTOR IN THE AMERITECH ILLINOIS PRICE INDEX FORMULA?

- A. There are three components to the X factor in the Ameritech Illinois price index formula: a productivity differential, an input price differential, and a consumer productivity dividend. The components based on measurable economic data are: the productivity differential, which measures the difference in telecommunications productivity gains and overall economy productivity gains; and the input price differential, which measures the difference in telecommunications input price growth and overall economy input price growth. The consumer productivity dividend is a judgmental policy tool imposed by the Commission. The Commission characterized the consumer productivity dividend as capturing the first cut of any productivity gains arising from technological and regulatory change.

² Order, p. 20.

Q. WHAT VALUES WERE CHOSEN FOR THE X FACTOR COMPONENTS OF THE AMERITECH ILLINOIS PRICE INDEX FORMULA?

A. The Order established an X factor of 4.3 percent, consisting of an input price differential of 2.0 percent, a productivity differential of 1.3 percent and a consumer productivity dividend of 1.0 percent.³ Thus, the “I minus X” price index formula adopted by the Commission was “GDPPI – 4.3%.” My testimony addresses the productivity and input price differentials. Ms. Larkin addresses the consumer productivity dividend in her testimony.

Q. IS THERE MORE RECENT EVIDENCE ON THE VALUES OF THE X FACTOR COMPONENTS USED IN AMERITECH ILLINOIS’ PRICE INDEX FORMULA?

A. Yes, there is. The data used to determine the original values of the productivity and input price differential components of the X factor in the Ameritech Illinois price index formula went through 1991. In accordance with the Commission’s Order, I review most recent economic evidence for the overall economy, for the telecommunications industry, and for Ameritech Illinois to determine whether the original values of the productivity and input price differentials used to determine the X factor are still appropriate.

Per the Commission’s Order, I review the recent evidence on productivity gains for the economy as a whole, for the telecommunications industry, and for Ameritech Illinois from 1992 through 1999, to the extent available.

³ Order, p. 40.

Economy-Wide Productivity Gains

Q. WHAT IS THE RECENT EVIDENCE ON ECONOMY-WIDE PRODUCTIVITY GAINS?

- A. The Bureau of Labor Statistics last released data on economy-wide total factor productivity in February of 1999. Those data extended through 1997. That data set shows that private business total factor productivity (the BLS uses the term multifactor productivity) grew at an average annual rate of 0.6 percent over the 1992-1997 period.
- Currently, the BLS is updating its data on total factor productivity, as well as incorporating substantial methodological revisions. The revisions are being conducted in parallel with methodological revisions that took place in the measurement of gross domestic product and the GDPPI. BLS has already revised its historical estimates of labor productivity. The revisions have led to a substantial upward revision in the historical rate of labor productivity growth, and they will also lead to a substantial upward revision in the rate of total factor productivity growth. In addition, the years 1998 and 1999 also showed substantial real economic growth, which will likely translate into higher TFP growth when the BLS releases number for those years.
- However, the revised and updated data will not be published until late in 2000.
- Because the historical record will be updated and substantially revised later this year, and the revised data will be consistent with the newly-released estimates of GDPPI, it is important for the setting of the going-forward X factor to determine what the revised and updated economy-wide productivity gains will likely be. Based on publicly available data, I have calculated an economy-wide total factor productivity series that represents an estimate of the revised and updated series that will be released by the BLS later this year. This series shows that over the

1992-1999 period, economy-wide productivity growth averaged 1.2 percent per year. This calculation is described in Attachment 1.

Telecommunications Industry Productivity Gains

Q. WHAT IS THE RECENT EVIDENCE ON TELECOMMUNICATIONS INDUSTRY PRODUCTIVITY GAINS?

A. Subsequent to the filing of the original Ameritech Illinois TFP study by Dr. Laurits R. Christensen, Christensen Associates worked with the United States Telecom Association (USTA) to develop the Total Factor Productivity Review Plan (TFPRP) model, which measures TFP growth for the local exchange carrier industry. The TFPRP is based on the same methodology as the Ameritech Illinois TFP studies described below. The USTA updates the TFPRP periodically and, currently, model results are available through 1998. For the 1992-1998 period, the TFPRP calculates average annual output growth of 4.7 percent, average annual input growth of 1.3 percent and average TFP growth of 3.4 percent annually for the LEC industry.⁴ Over the same period, our best estimate is that economy-wide TFP growth averaged 1.1 percent annually. This produces a TFP differential of 2.3 percent between the LEC industry and the overall economy for the 1992-1998 period. Attachment 2 provides the tables from the most recent TFPRP update filed by the USTA with the Federal Communications Commission.

⁴ The latest TFPRP results were filed with the FCC in "Reply Comments of the United States Telecom Association," CC Dockets No. 94-1 and 96-262, January 24, 2000.

Ameritech Illinois Productivity Gains

Q. WHAT IS THE RECENT EVIDENCE ON AMERITECH ILLINOIS' PRODUCTIVITY GAINS?

A. The Ameritech Illinois TFP study, first introduced by Dr. Christensen in the original alternative regulation proceeding, was relied on by the Commission in establishing the X factor. The results of the original study sponsored by Dr. Christensen were for the 1984-1991 period. Over the 1984-1991 period, Ameritech Illinois' TFP growth averaged 2.2 percent and overall economy TFP growth averaged 0.9 percent for a TFP differential of 1.3 percent. Employing the same methods used in the original study, we have updated the results of the Ameritech Illinois TFP study for the 1992-1999 period. Over the 1992-1999 period, Ameritech Illinois output growth averaged 4.6 percent, input growth averaged 0.5 percent, and TFP growth averaged 4.2 percent annually.⁵ With the U.S. economy average annual TFP growth estimated to be 1.2 percent over this period, this produces a TFP differential of 2.9 percent between Ameritech Illinois and the overall economy.⁶ Attachment 3 describes the computation of TFP for Ameritech Illinois over the 1992-1999 period.

Input Price Differential

Q. HOW IS THE INPUT PRICE DIFFERENTIAL COMPUTED?

A. In performing a total factor productivity study, input price growth is computed as the growth in the cost of total input less the growth in the quantity of total input. For the economy as a whole,

⁵ Rounding creates the apparent discrepancy in the numbers. Using two decimal places, Ameritech Illinois' average output growth was 4.64 percent, and average input growth was 0.46 percent, producing average TFP growth of 4.18 percent.

input price growth is estimated by adding the rate of GDPPI growth and the rate of economy-wide productivity growth. The input price differential is computed as the rate of economy-wide input price growth less the measure of telephone industry (or, alternatively, Ameritech Illinois) input price growth.

Q. WHAT IS THE RECENT EVIDENCE ON THE INPUT PRICE DIFFERENTIAL?

A. As mentioned above, the rate of economy-wide input price growth can be obtained by adding the rate of GDPPI growth and the rate of economy-wide productivity growth. Based on the recently revised data, the average rate of GDPPI growth over the 1992-1999 period was 1.9 percent per year. With economy-wide productivity growth averaging 1.2 percent per year, the average rate of input price growth was 3.1 percent per year. Economy-wide input price growth for the 1992-1998 period also averaged 3.1 percent per year.

Based on the LEC industry evidence provided by the TFPRP, over the 1992-1998 period, LEC industry input price growth averaged 2.0 percent annually. With U.S. input price growth averaging 3.1 percent annually over this period, the input price differential was 1.0 percent between the LEC industry and the overall economy.⁷ Over the 1992-1999 period, Ameritech Illinois' input price growth averaged 2.5 percent annually and U.S input price growth averaged 3.1 percent annually, for an input price differential of 0.6 percent between Ameritech Illinois and the overall economy.

⁶ Using two decimal places, Ameritech Illinois average TFP growth was 4.18 percent and US TFP growth was 1.25 percent, producing a differential of 2.93 percent.

Q. IN YOUR PREVIOUS TESTIMONY (AMERITECH ILLINOIS EXHIBIT 2.0), YOU NOTED THAT THE OFFICIAL MEASURE OF ECONOMY-WIDE INFLATION IS NOW THE CHAIN-WEIGHTED GDPPI AND THAT ECONOMY-WIDE TFP AND INPUT PRICES ARE ALSO NOW MEASURED ON A CHAIN-WEIGHTED BASIS. HAVE YOU USED CHAIN-WEIGHTED MEASURES OF INFLATION, PRODUCTIVITY AND INPUT PRICES IN YOUR CURRENT TESTIMONY?

A. Yes, I have. Consistent with official government statistics, the computations I have presented here for Ameritech Illinois and the telecommunications industry, and the comparisons I have made with economy-wide measures, are all based on chain-weighted measures of inflation, productivity and input prices.

SBC/Ameritech Merger Savings

Q. DR. MEITZEN, WHAT IS YOUR UNDERSTANDING OF THE COMMISSION'S EXPECTATIONS FOR HANDLING MERGER SAVINGS IN THIS PROCEEDING?

A. As I understand the Commission's Order in the SBC/Ameritech merger proceeding, the Commission expected that merger savings would be flowed through to customers by reflecting actual merger savings in the price index formula.

Q. COULD THE COMMISSION'S EXPECTATION BE MET BY ADJUSTING THE TFP RESULTS FOR AMERITECH ILLINOIS THAT YOU HAVE PRESENTED

⁷ Using two decimal places, US input price growth was 3.06 percent and industry input price growth was 2.04 percent,

**HERE AND USING SUCH MODIFIED RESULTS FOR A DETERMINATION OF
THE PRODUCTIVITY DIFFERENTIAL?**

- A. No. As I stated, TFP measures total output against total input over the same time period. In the case of the Ameritech Illinois TFP study, this period is 1992-1999. Savings from the SBC/Ameritech merger, to the extent they materialize, would occur in time periods beyond 1999. If I were measuring TFP growth for Ameritech Illinois at some future point in time, say 2006, those results would reflect any merger savings (as well as all other changes in input and output growth that would impact Ameritech Illinois' TFP growth) over the 2000-2005 period. TFP growth cannot be estimated for a future period by simply altering only one input component. Moreover, at the current point in time, the impact of the merger on Ameritech Illinois' TFP growth cannot be ascertained; any attempt to make such an adjustment would be purely speculative. Furthermore, economy-wide and industry TFP performance would also be different in the future period, thus changing the TFP differential that is a component of the Ameritech Illinois price index formula. For these reasons, the TFP results presented here cannot be altered in an attempt to reflect merger savings.

Summary and Conclusions

Q. PELASE SUMMARIZE THE RECENT EVIDENCE ON PRODUCTIVITY GAINS.

- A. The original X factor of 4.3 percent in the Ameritech Illinois' price index formula was based on data from 1984 through 1991 that produced a TFP differential of 1.3 percent and an input price differential of 2.0 percent. To these components, which sum to 3.3 percent, a 1.0 percent

for a 1.02 percent differential.

consumer productivity dividend was added to arrive at the 4.3 percent X factor. The recent LEC industry evidence from 1992 through 1998 shows a TFP differential of 2.3 percent and an input price differential of 1.0 percent, which would also produce an X factor of 3.3 percent. Using Ameritech Illinois data from 1992 through 1999, the combination of the TFP differential (2.9 percent) and the input price differential (0.6 percent) would produce an X factor of 3.5 percent.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.